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ABSTRACT

A discussion of technology use in elementary school foreign language instruction looks at current uses of technology in the classroom and discusses its effectiveness and potential use. An introductory section describes various types of technology applied to instruction, including: computers and computer software; CD-ROM; telecommunications and online telecommunications systems; the Internet; satellites; interactive audio and video; and multimedia centers. A number of studies focusing on the relationship between technology and elementary school foreign language learning are then reviewed. In some cases, specific computer software is highlighted. It is concluded that overall, use of technology to teach young foreign language learners has had positive results, with the technology providing a richer learning environment. Further research, including longitudinal studies extending some of the existing research, is recommended. Additional efforts are suggested to improve technology use, including development of motivational and whole-brain activities, fostering of positive self-concept and language attitudes, and increased opportunities to communicate in the target language. Contains 10 references. (MSE)

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TECHNOLOGY & THE ELEMENTARY FOREIGN LANGUAGE CLASSROOM

by
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INTRODUCTION

In many facets of today's society the use of technology is becoming more and more prevalent due to its amazing ability to ease everyday tasks. It has managed to work its way into our homes and businesses making terms such as, "computer", "fax", and "E-Mail" part of our everyday vocabulary. Today technology has virtually reduced the size of our world by allowing us to travel the globe in search of endless information without ever having to leave the confines of our homes and offices.

Technology has also found its way into classrooms around the world, where it is said to enhance and facilitate learning. In fact in 1995 The National Center for Education Statistics (NCES) released a survey of ***Advanced Telecommunications in U.S. Schools, K-12,*** and found that fifty percent of U.S. schools now have access to the Internet. According to NCES, this percentage is up thirty five percent from the previous year. Should this trend continue to increase in the years to come, more and more students around our nation will be "surfing the net" in order to complete homework assignments and school projects.

One area of education where technology seems to be playing a large role is in the magnet schools which are popping up around the nation. Many of these schools, serving both high school and elementary students, focus on the use of technology, and some even integrate technology directly into their foreign language programs. In fact Karen Willetts (1993) informs us in her report, ***Technology and Second Language Learning,*** that magnet schools are being created in several school districts across the nation where the emphasis is placed specifically on technology.

international studies and foreign languages. Florida, for example, through its "School Year 2000 Initiative," has poured funds into five technology schools. These schools will serve as models whereby technology and daily lesson plans for foreign language classes will be integrated (Arnall, 1992).

These are just a few of many initiatives which integrate technology with foreign language learning. But is it effective? What exactly is the role of technology in those classrooms where foreign languages are taught? More specifically what is their role in a K-6 setting? Does the use of technology actually facilitate learning and if so, will technology ultimately replace teachers in the future? To begin our search for the answers to these questions, we must first take a look at and understand exactly what kinds of technology our students and teachers are currently using.

TYPES OF TECHNOLOGY

As foreign language teaching methodologies have evolved from grammar translation used at the turn of the century to a communicative approach currently in use, so too has technology evolved. Over the years many foreign language teachers have relied on such things as, audio tapes, video tapes, language labs, overhead projectors, televisions and VCRs to assist in foreign language acquisition. But today, foreign language teachers have even more options to choose from, providing interactive and more culturally authentic learning environments for students. For example, multimedia centers are replacing those language labs (Arnall, 1992) which were thought to transform monolingual students into effective speakers of a second language. Audio and video no longer consist of just listening and watching, rather they allow students to interact with the given material. And computers are no longer just providing learners with electronic textbook drills, rather they are linking them with learners around the world. Since computers are such a basic learning tool, let us begin our discussion of the various types of technology here.

The computer is an amazing development which has evolved from large pieces of machinery requiring entire rooms to house them, to the laptop, which is so compact that it will fit into a brief case. Computer functions have also evolved. At one time foreign language teachers could only reinforce what was taught in the classroom by presenting computer programs that reflected textbook drills. These types of programs were referred to as Computer Assisted Instruction (CAI), Computer Assisted Language Learning (CALL) or Computer Assisted Language Instruction (CALI). Most of these programs would provide the learner with a simple "right" or

"wrong" answer, while others would actually analyze the student response and provide a tutorial message explaining the reasoning behind an incorrect answer. Today these programs may still be used in some language classrooms, since they are said to substantially develop reading skills (Clifford, 1991). But new software, such as that designed for CD-ROM, allows students to interact with the material rather than just react to it.

CD-ROM refers to Computer Disc Read-Only Memory, meaning that one cannot alter what has been imposed on the disc. These CDs have the capability of holding much more information than a traditional floppy or hard disc and they can also store various *types* of information. For example, an entire encyclopedia series can be stored on just one disc and may provide the viewer with animation, video, text, speech, sounds, music and photos. In terms of language learning, students can access these encyclopedias to research information on the target culture. There are also some CD-ROM programs that provide such multimedia and allow students to partake in stories or games which require them to use the newly learned skills or vocabulary in order to progress. An example of this type of software aimed at elementary foreign language students would be ***Goldilocks & The Three Bears***, produced by Syracuse Language Systems. Other CD-ROM programs will allow learners to practice their accents and pronunciation simply by having them listen to examples of words or phrases spoken by a native speaker of the target language and then recording themselves repeating what they had heard. They then may compare their pronunciation with that of the native speaker, thus making evident the areas of pronunciation that are in need of improvement. Glencoe's ***Bienvenidos*** CD-ROM has this capability as well as other valuable functions such as, reading and writing activities.

The possibilities using CD-ROM seem endless and they not only provide students integrated instruction of the target language and culture, but the various types of media may serve to motivate and stimulate learning.

Let us return now to the basic computer component. To it we shall add a telephone line and a modem which will first, allow our computer to call networks around the world that are full of information and then, allow us to retrieve that information. These networks may be linked to government agencies, colleges, universities, companies and individuals (Maran & Mohan, 1995). Some networks may be referred to as Local Area Networks (LAN), which will allow schools within a school system, for example, to communicate and share foreign language software. This is cost effective because it allows a school system to purchase only one disc of a particular program rather than a disc for every computer in the entire district. Similarly long distance networks function in the same manner, only they cover greater distances.

A simple way to tap into some of these networks is to connect to an online service such as, ***America Online, Prodigy or CompuServe***. These online services contain a wealth of information that may be used in foreign language classrooms. For example, ***America Online*** provides teachers and learners with sites dedicated to kids only where they can find educational games such as, MayaQuest, an interactive journey throughout Central America with the purpose of learning about the Maya civilization. There are also Chat areas where teachers and students can communicate in real time with people from around the nation using the target language. For

foreign language teachers there is a resource area which provides educational references and even lesson plans for grades K-12. There is an extensive reference area which includes encyclopedias and dictionaries. Bulletin boards are available where teachers could leave messages for other teachers within the nation regarding projects, for example. Of course there is also E-Mail, which provides students and teachers the opportunity to correspond globally with others. But in order to accomplish global communication, the online service must provide access to the Internet.

The Internet, also referred to as the "Information Superhighway" is still relatively new to students and teachers, although it was created back in the late 1960s by the U.S. Defense Department (Maran & Mohan, 1995). The Internet is simply a group of networks that are connected together throughout the world. So resources that can be accessed via the Internet are limitless. Foreign language students, for example, could chat with other students their age from other countries in the target language or they could correspond with "keypals," which is the electronic version of penpals. They could collaborate on worldwide projects and access libraries around the world retrieving unlimited information. In fact any research conducted by students could also be published on the Internet (Dyrli & Kinnaman, 1995). These are just a few ideas, but with a little imagination students and teachers could create the ultimate learning environment revolving around their specific objectives. Internet popularity is increasing by leaps and bounds and it is believed that by the year 2000 the resources and tools found on the Internet will be used by more that two million K-12 students (Dyrli & Kinnaman, 1995).

Another way of bringing the world into our foreign language classrooms is through the use of satellites. In this manner students can view foreign news and information in the target language. Communication companies such as, Satellite Communication for Learning Worldwide (SCOLA) provide educators and learners with this culturally authentic learning tool. Computers connected to the satellite could also provide tools such as, quizzes, vocabulary, discussion topics and English translations of the broadcasts (Arnall, 1992). These items could be printed out and then integrated into the foreign language lesson as a reinforcement tool.

Satellites are not only limited to broadcasting foreign news and information, but rather they are the basis for Distance Learning. With this type of education students in one venue can take a course that is being taught in another venue without ever leaving the classroom. With regard to foreign language, this type of education is becoming increasingly more popular, especially in remote school systems, because many more languages could be offered to students than would otherwise be possible due to their remoteness or expense (Arnall, 1992). In fact at least six states use this technology to offer foreign language instruction to remote schools (Willetts, 1993).

The basic operation of long distance learning requires that a teacher give a lesson from a broadcast station. Audio and video signals emitted by the station will be picked up simultaneously by several schools located at different sites, providing students with the lesson. This system is also helpful in providing professional workshops to teachers who, for various reasons, could otherwise not travel to a particular site.

As mentioned earlier, audio and video have really evolved over the years to become interactive tools involving learners in culturally authentic communication, making it meaningful to them. As a result, this increases their motivation and enhances their learning.

Interactive audio and video is similar to what was already described as software programs designed for CD-ROM. Learners must interact using their newly learned skills in order to progress with the program. With actual video, however, students interact with scenes of a videotape or videodisc. After having seen a portion of a video students must respond to either oral or written questions using a keyboard or a touch screen monitor (Arnall, 1992). Some video programs will even include simulation exercises whereby the student is required to assume the role of a particular character presented in the video or respond in the target language to real-life situations (Arnall, 1992). Some interactive audio programs may even ask students to create dialogues and then practice them with other students (Clifford, 1991). This is a great way for students to develop their writing and speaking skills, and it is motivational.

Finally, if we were to take the many types of technology that have been presented here, integrate them together and contain them in a defined area, we would have a Multimedia Center. The idea of a multimedia center is similar to the language lab concept, only it's better. In one designated area, students have access to many different types of media such as, "video, still/slides (photos scanned into the computer), animation, speech, sound, text, etc." (Arnall, 1992). With this multimedia center students could create and produce original works in the target language, which

not only reinforce language skills, but which also provide students with the opportunity to learn about and experience different types of technology. It's also a terrific way to integrate other disciplines into foreign language learning.

TECHNOLOGY AND ELEMENTARY FOREIGN LANGUAGE

Next, we will take a look at some studies that have been conducted in the last few years that focus on the relationship between technology and foreign language learning with regards to K-6 students.

Our first study, conducted over a three year period by Worldwide Education and Research Institute with assistance from students of the Department of Instructional Technology at Utah State University, is reported by Eastmond and Elwell (1994) and looks at the effectiveness of videodiscs used to teach Spanish, French and Japanese to elementary students.

The Spanish and French video disc, ***Hablar et Parler,*** and the Japanese video disc, ***Konnichi-Wa!*** were evaluated by teams of university students who looked at their instructional design and how the technology was being utilized in the classroom. By interviewing teachers and administrators, observing classroom use of the videodiscs and utilizing focus groups consisting of randomly chosen elementary students, the teams were able to reach some conclusions.

First, with regard to ***Hablar et Parler,*** there were some complaints regarding difficulties with the actual equipment, but the overall conclusion in terms of learning was quite positive. The program introduced basic vocabulary and culture and it presented native speakers along with actual video of the countries which use the target language.

It was agreed that the videodisc is an excellent teaching tool. Teachers used a variety of teaching

styles to address a variety of learning styles and students really responded well, having enjoyed the program. In fact these materials and techniques appeared to keep the interest of the lower ability students longer than the higher ability students, and the lower ability students even managed to out perform the higher ability students in language learning. Finally, most teachers agreed that this technology not only facilitates teaching, but that it also improves "learner efficiency and attitudes."

With regard to ***Konnichi-Wa!***, the results were similar. Some thought that the information on the videodisc was limited. Some teachers who could not speak Japanese but who were teaching the course agreed that even after viewing behavior models for student feedback several times, they still didn't feel comfortable praising students or using reinforcements in Japanese. However, in terms of the learners, it was agreed that the videodisc provided them with a "rich learning environment." As with ***Hablar et Parler***, this program maintained the interest of the students providing them with vocabulary, culture, native speakers and footage of Japan. Some students even chose this course as their favorite of all the courses in which they were currently enrolled.

Baker (1992) writes about another study conducted by the University of Central Queensland, where technology was also integrated into an elementary foreign language program. This study focused on the "feasibility and potential" of distance learning.

From a studio, located in Rockhampton, students from several different primary schools were taught French and Japanese using this technology. First a French class would experience

instruction using two-way video and audio, meaning that both the teacher and the students could see and hear one another. Next, three Japanese classes would be receiving instruction simultaneously but would experience only one way video and two-way audio. In other words the teacher was unable to see the students, but the students could see her, and both teacher and students could hear one another. The material being taught was basically review material with classes running between 30 and 40 minutes.

Results of the program were based on interviews held with Japanese and French teachers who were conducting the lessons, the teachers and students of the elementary schools involved, the Executive Director and other staff of the Capricornia Region of the Queensland Department of Education and Representatives for the Queensland Open Access Support Center and of the Priority Country Area Program.

Through the interviewing process it was found that the two way video two way audio is more effective than the one way video and two way audio. The French teacher commented that she covered the desired material with students and that it was very similar to a regular class, but did note that her movements in the studio were limited resulting in her sitting more than usual. The Japanese teacher commented that not being able to see the students made it difficult to gauge their understanding of the material being taught although she believed that the lesson was successful. She also commented that one needs to be "ultra prepared" when teaching in this manner. Both teachers experienced distractions due to noise and movement made by observers in the studio and they also believed that there ought to be some type of training for those using the technology.

Observers of the lessons reacted positively and expressed that they thought the teachers giving the lessons were successful and that they indeed achieved their intended goals. They noted that the students were motivated, that they participated and that the lessons were enjoyable. However, some felt that the technology, which seemed to motivate the learners, was just a novelty and would wear off with continued use.

With regard to the equipment the observers were also in favor of the two way audio and two way video technology, which was only used in the trial with the French lesson. They were also disappointed with the audio quality saying that it was poor. Some observers were concerned with the idea that teachers could not engage with the students and that the students couldn't always see the teacher due to the presentation of charts, for example, that would be zoomed in upon by the camera. In doing this students would then be unable to pick up on any nonverbal cues that the teacher might present. They also noted that the teacher could not monitor the students with accuracy, claiming that some students would lose track of the teacher and the teacher would not immediately recognize this.

The students' reactions were all positive in terms of learning. They really liked the idea of learning via television, and commented that it was "fun" and "excellent" and that the time passed by quickly. They listened to the teacher and were able to copy notes, just like in a regular class, however, most students preferred to have the teacher present in the classroom because she/he could move around the room and offer help while checking their work. Students also preferred

that the classes were taught separately instead of having several taught simultaneously, as was the case with the Japanese lessons. The reason, they say, is because they would be less nervous, would not feel so self conscious and would participate more. Also students did not like the idea of passing around a microphone in order to be heard by the teacher and thought that set up time of the equipment was time consuming.

Another article which reports on the integration of technology and foreign language learning deals with an ESL program in the Alief Independent School District located in Houston, Texas (Burns, 1996). In this district it is believed that multimedia technology can provide students with a "rich linguistic environment." Here every classroom contains a "technology center" and at the center of their software curriculum is a multimedia program called, ***English Express.*** (Davidson) This program focuses on English acquisition and uses real life situations allowing students to move at their own pace. There is even a "scoreboard" that allows students to measure their own progress at the completion of each session. The software comes with photographs and a videodisc which add to the richness of the learning environment by engaging students in discussions, collaborative projects and other interactive activities. The article concludes by mentioning that teachers using this program see a "positive classroom environment and a good level of self confidence."

Ian (1996) writes about another school which has integrated technology and foreign language learning, Forest Glen Elementary, a K-5 international magnet school located in Lawrence Township, Indiana. The school is relatively new, having opened its doors in August of 1994, yet it has quickly grown to become one of the most popular schools in the area. In fact there is a

waiting list for enrollment that is so long, some parents have even offered to pay tuition just to give their children this educational experience.

Forest Glen offers its K-2 students a Spanish Immersion program where students speak and hear Spanish 95% of the time. To other students there is available a Global Studies program which provides students with instruction in either Spanish, German or Japanese. But these programs are not solely responsible for the success and popularity of the school, rather it is a combination of foreign language instruction and integrated technology.

Technology indeed plays a substantial role in Forest Glen Elementary School. For example, each classroom is equipped with five student computers and one teacher workstation. In addition there is a computer lab which is equipped with 30 computers, a media production room which enables students to create their own videos and 3-D images, and a satellite dish which teachers often use to take their students on "curriculum journeys" to other countries. Students can also journey to other countries via the Internet where they communicate with their "keypals." Beside offering students all of these features, there is a control room which staffs a media specialist, a technology specialist and an instructional assistant who specialize videos for teachers as well as provide other media related support.

As a result of having integrated all of this technology into the foreign language curriculum, the school principal, Marsha Foley claims that there is an absence in behavior problems. Kids don't giggle or become restless nor do they daydream. She also says that their accents in the target

language are "impeccable" and she believes that all of this success in the foreign language program is due to the fact that every single minute of the day is planned and structured. The Superintendent, Percy Clark, Jr., believes that their program at Forest Glenn appeals to whole brain learning and also believes that technology never comes between the teacher and the child, nor does it ever replace the teacher. Best of all, parents, who can be tough to please, believe that the integration of technology is definitely a plus.

SUMMARY OF THE STUDIES AND ARTICLES

Other than a few glitches in technology and a few organizational problems seen in the study which focused on distance learning, the use of technology to teach young learners a foreign language has fostered positive results. In three of the four articles seen here it was found that technology provided the students with a richer cultural and linguistic learning environment. Distance learning did not prove this, but it, along with the other articles demonstrated technology to serve as a great motivational tool boosting and maintaining the interest of students, especially the lower ability students. In fact there were no disciplinary problems reported in any of the four articles presented, which may be due to the fact that integrated technology and foreign language programs are more structured than other programs in other disciplines. It is then safe to say that for the most part the technology presented in these articles facilitated learning by providing the students with a well rounded learning environment, which the teacher alone could not do.

Although the articles presented here advocate the use of technology in foreign language learning, more studies do indeed need to be conducted regarding their direct relationship. Articles regarding this topic are available, but studies, especially those dealing with elementary foreign language learners, are limited. Currently, research focuses on older learners and the use of computer software programs. Future studies might include the affects of foreign language learning through other technological media, and expand on those which are already presented here. Since magnet schools and FLES programs are becoming more popular around the nation, it might be nice to conduct studies in those environments. It would also be interesting to conduct a

longitudinal study and take some of the Forest Glen students, for example, follow them to their senior year in high school through an integrated foreign language program and then measure their achievement at that point. As time marches on, more and more developments in technology will become available to both teachers and students. It's imperative then, to have current and reliable studies showing their importance in the acquisition of foreign languages. Only in doing this will we be enabled to provide the best possible education and remain competitive with other nations.

CONCLUSION

We know that younger students appear to acquire foreign languages with greater ease than older students and adults. As a result, we are witnessing a boom in the development of magnet schools and the implementation of FLES programs throughout the nation and the world. But when dealing with young foreign language learners it is important that we, as educators, keep several things in mind when planning a curriculum.

First, we need to understand stages of cognitive and physical development in children and be able to provide age appropriate materials to them. We need to present a variety of activities that are motivational and that require whole brain learning or the integration of other disciplines. We should aid students in creating a positive self concept and developing a positive attitude toward foreign language learning and foreign cultures, so much so, that they will remain interested in and will continue to pursue language learning. Finally, we need to provide students with opportunities to communicate in the target language, and interact with, as well as, gain as much knowledge and understanding of the target culture as possible, making it truly authentic.

These goals may seem difficult to meet, but when met, the results would be phenomenal. One of the best ways to accomplish these goals is through the use of technology. From the earliest foreign language student to the oldest, technology motivates students, and aids in the development of spoken and communicative language skills. Creating activities involving technology that are age appropriate will engage the learner, keep his/her interest and increase self

esteem as they experience more and more success with the equipment and the target language. Activities developed for foreign language that revolve around technology can integrate learning in every discipline of education. For example, students could measure weather trends in countries that speak the target language. Into this lesson science, math and geography would easily be integrated.

Basically, technology provides a world of resources that can't be derived from any textbook. As educators, maybe we should be steering away from the textbook and changing curricula to revolve around all of the technological tools that are available to us. Learning would be more student centered thus, redefining the teacher's role, perhaps, to facilitator of learning within the classroom. Foreign language wouldn't just produce multilingual students, but rather students who would be prepared for a competitive society that heavily relies not only on global communication and relations but also on the use of technology to propel it forward.

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